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LONG-RANGE  
INTERNATIONAL  
**Civil Reserve Air Fleet**  
( CRAF )  
**Capability**

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## AN EXAMINATION OF LRI CRAF CAPABILITY

SINCE 1975, 18 MAJOR DOD STUDIES HAVE DOCUMENTED SHORTFALLS IN CARGO MOVEMENT CAPACITY. IN ORDER TO MEET THESE SHORTFALLS, FORCE STRUCTURE DECISIONS ARE BEING MADE TO ADD TO OUR PRESENT ORGANIC AND CIVIL RESERVE AIR FLEET (CRAF) ASSETS TO ACHIEVE THE DEFENSE GUIDANCE (DG) LONG RANGE GOAL OF 66 MILLION TON MILES PER DAY (MTM/DAY) OF CARGO CAPABILITY. MILITARY RESOURCES ALONE HAVE BEEN AND WILL BE INSUFFICIENT TO MEET OUR TOTAL AIRLIFT REQUIREMENTS. THUS, FOR THREE DECADES DOD HAS PLANNED FOR THE CIVIL AIRLIFT INDUSTRY TO AUGMENT MILITARY AIRLIFT IN CONTINGENCIES, EMERGENCIES, AND FULL-SCALE OPERATIONS. RECOGNITION THAT AN EFFECTIVE MOBILITY SYSTEM MUST BE BASED ON AGREEMENTS BETWEEN THE MILITARY AND CIVIL SECTOR IS EMBODIED IN THE CRAF PROGRAM. PRESENTLY, APPROXIMATELY HALF OF OUR WARTIME RESOURCES (30 PERCENT OF THE CARGO CAPABILITY AND 95 PERCENT OF THE PASSENGER CAPABILITY) ARE PROJECTED TO COME FROM THE CRAF, YET THESE ARE SOME AREAS THAT HAVE RARELY BEEN EXAMINED.

## **STUDY OVERVIEW**

- EXAMINE THE LONG-RANGE INTERNATIONAL CARGO CRAF TO INCLUDE
  - REASONS FOR THE DROP IN LIFT CAPABILITY
  - PRESENT APPROACHES TO COUNTERACT DROP
  - ALTERNATIVES FOR INCREASED LIFT CAPABILITY

## STUDY OVERVIEW

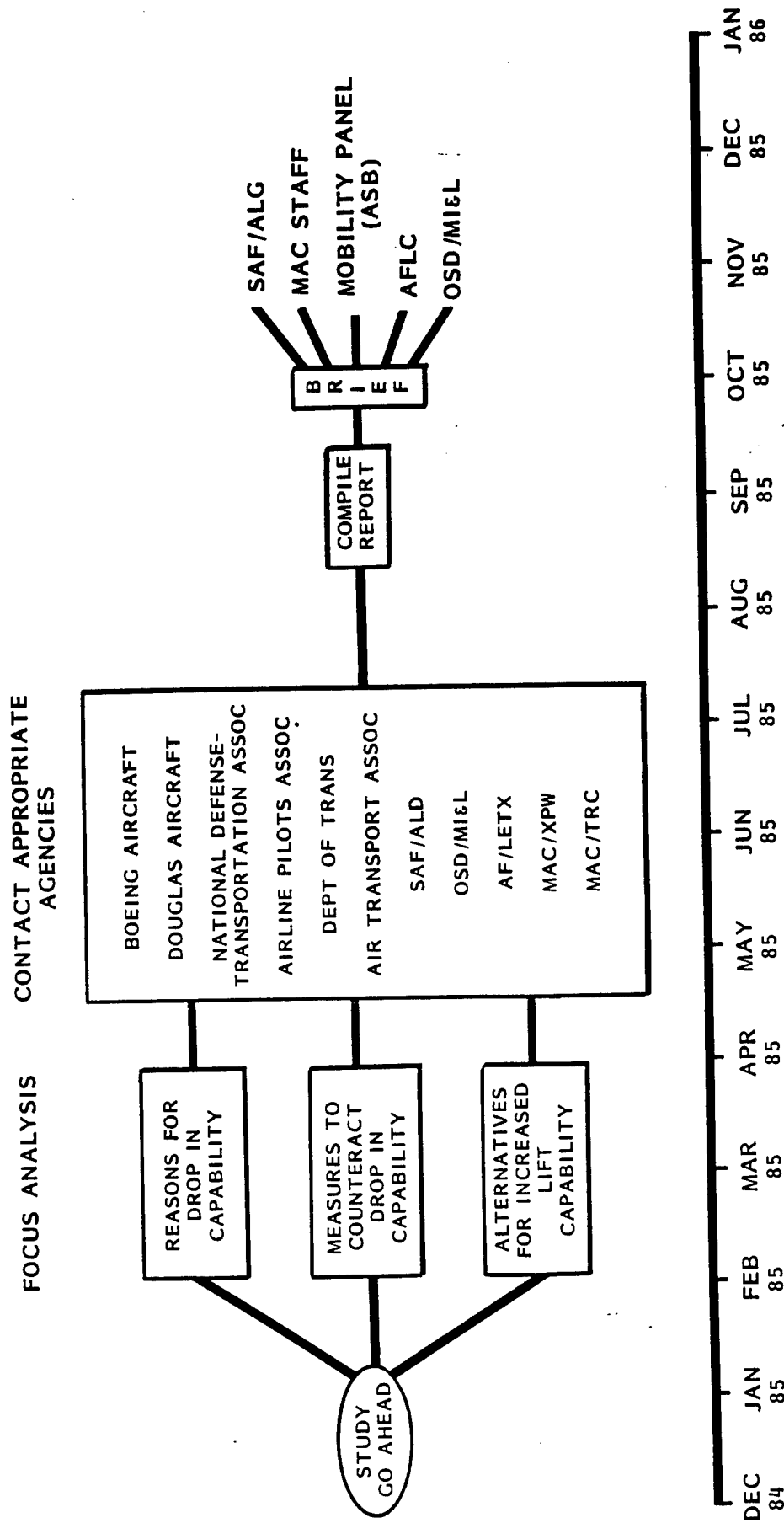
THE OBJECTIVE OF THIS STUDY IS TO TAKE A COMPREHENSIVE LOOK AT LONG-RANGE INTERNATIONAL (LRI) CRAF, TO INCLUDE ALTERNATIVES FOR INCREASING LIFT CAPABILITY.

FIRST WE WILL EXAMINE THE REASONS FOR THE APPROXIMATELY 45% DROP IN CARGO LIFT CAPABILITY WITHIN THE LAST 24 MONTHS.

NEXT WE WILL EXAMINE THE APPROACHES PRESENTLY UNDER WAY TO COUNTERACT THIS DROP IN CAPABILITY.

FINALLY, WE WILL EXPLORE OTHER ALTERNATIVES WHICH COULD INCREASE LIFT CAPABILITY WHILE RETAINING THOSE FEATURES THAT OVER 30 YEARS EXPERIENCE WITH CRAF HAVE SHOWN TO WORK WELL.

# MAJOR MILESTONES



## MAJOR MILESTONES

SHOWN ARE THE TIME FRAMES INVOLVED IN EACH OF THE THREE MAJOR AREAS OF THIS STUDY.

PRIOR TO ADDRESSING THESE THREE AREAS WE REVIEWED CONTINGENCY PLANS, SCENARIOS AND REGULATIONS, AS WELL AS PREVIOUS STUDIES PERFORMED WITHIN DOD, PRIVATE INDUSTRY AND THE NATIONAL DEFENSE UNIVERSITY.

DURING THE ANALYSIS, DISCUSSIONS WERE HELD WITH REPRESENTATIVES OF FIRMS OPERATING AS CARGO CARRIERS AND AIRCRAFT MANUFACTURERS, INDUSTRY ORIENTED ORGANIZATIONS, AND DOD OFFICES.

AT THE RIGHT OF THE CHART IS THE BRIEFING TRAIL FORESEEN FOR THE COMPLETED STUDY.



## **BACKGROUND ON CIVIL RESERVE AIR FLEET**

- SUPPORTED BY NATIONAL AIRLIFT POLICY STATEMENT
- CONSISTS OF CIVIL CARGO AND PASSENGER AIRCRAFT
- VOLUNTARY CARRIER COMMITMENT
  - COMMITS AIRCRAFT, CREWS, SUPPORT PERSONNEL, & FACILITIES
- CONSISTS OF FOUR SEGMENTS
  - ALASKAN
  - DOMESTIC
  - SHORT-RANGE INTERNATIONAL (SRI)
  - LONG-RANGE INTERNATIONAL (LRI)
- ACTIVATED IN THREE STAGES
  - STAGE I (LRI ONLY, CINCMAC APPROVAL) 63 AIRCRAFT
  - STAGE II (LRI AND DOMESTIC, SECDEF APPROVAL) 151 AIRCRAFT
  - STAGE III (ALL SEGMENTS, PRESIDENT APPROVAL) 366 AIRCRAFT

## BACKGROUND ON CIVIL RESERVE AIR FLEET

BEFORE ADDRESSING THE FINDINGS OF OUR STUDY WE WOULD LIKE TO PROVIDE BACKGROUND INFORMATION ON THE CRAF, IN ORDER TO PUT THE LONG-RANGE INTERNATIONAL SEGMENT IN CONTEXT WITH THE ENTIRE CRAF PROGRAM. THE CRAF PROGRAM IS SUPPORTED BY THE NATIONAL AIRLIFT POLICY STATEMENT (NAPS), SIGNED BY PRESIDENT TRUMAN IN 1952, AND DESIGNED TO MAKE USE OF EXPERIENCE GAINED DURING THE BERLIN AIRLIFT. THE NAPS OUTLINES FUNCTIONS TO BE PERFORMED BY BOTH DOD AND DOT DURING A STATED NATIONAL EMERGENCY. UNDER THE WAR AIR SERVICE PROGRAM (WASP), THOSE AIRCRAFT REMAINING AFTER THE CRAF AIRCRAFT HAVE BEEN WITHDRAWN, ARE REDISTRIBUTED AMONG CIVIL AIR TRANSPORT CARRIERS TO MAINTAIN ESSENTIAL CIVIL AIR ROUTES. SOME MAY BE MADE AVAILABLE TO DOD BASED UPON JUSTIFIED NEED, BUT WE WILL CONCENTRATE ON THAT PORTION OF COMMERCIALLY OPERATED AIRLIFT ALREADY COMMITTED TO DOD; THE CRAF.

THE CRAF CONSISTS OF US REGISTERED COMMERCIAL CARGO AND PASSENGER AIRCRAFT WHICH ARE SUITABLE AND OPERATIONALLY CAPABLE OF AUGMENTING THE MAC ORGANIC FLEET, AND WHICH HAVE BEEN DESIGNATED THROUGH AGREEMENTS BETWEEN USAF AND THE CARRIERS TO BE MADE AVAILABLE FOR USE IN AIRLIFTING TROOPS AND EQUIPMENT DURING PEACETIME AIRLIFT EXPANSION, CONTINGENCY, AND NATIONAL EMERGENCY.

CARRIER PARTICIPATION IN THE PROGRAM IS VOLUNTARY; HOWEVER, CARRIERS ARE PROVIDED INCENTIVES WHICH ENCOURAGE THEM TO BE INVOLVED. CARRIERS COMMIT THE NUMBER OF AIRCRAFT TO THE PROGRAM WHICH THEY FEEL THEY CAN SUPPORT WITH CREWS, PERSONNEL AND FACILITIES. ONCE COMMITTED, CARRIERS ARE CONTRACTUALLY BOUND. HOWEVER, FLEXIBILITY IS INCLUDED TO ALLOW FOR SITUATIONS, SUCH AS THE LOSS OF AN AIRCRAFT, WHICH MIGHT AT LEAST TEMPORARILY IMPACT THE CARRIERS' ABILITY TO FULFILL THEIR OBLIGATION.

THE CRAF PROGRAM IS DIVIDED INTO FOUR SEGMENTS: THE ALASKAN SEGMENT SATISFIES INTRA-ALASKAN AIRLIFT REQUIREMENTS OF THE ALASKAN AIR COMMAND; THE DOMESTIC SEGMENT SUPPORTS DAILY AIR FORCE & NAVY SUPPLY REQUIREMENTS AND OPERATES IN PEACETIME AS LOGAIR AND QUICKTRANS; THE SHORT-RANGE INTERNATIONAL SEGMENT ACCOMMODATES INTRATHEATER MOVEMENTS AND SHORT-HAUL OPERATIONS FROM THE U.S. TO NEAR OFFSHORE AREAS (E.G. CARIBBEAN, GREENLAND, ICELAND); AND THE LONG-RANGE INTERNATIONAL SEGMENT SUPPORTS MAC WORLDWIDE OPERATIONS. THIS LATTER SEGMENT HAS THE GREATEST DEMAND FOR AIRLIFT CAPABILITY AND IS THE LARGEST SEGMENT OF CRAF.

THESE FOUR SEGMENTS OF THE CRAF MAY BE EMPLOYED INCREMENTALLY IN THREE STAGES: THE STAGE I FLEET IS LONG-RANGE INTERNATIONAL AIRCRAFT, MEANT TO SUPPLEMENT EXISTING AIRLIFT ON A SHORT-TERM BASIS. THE CRAF HAS NEVER BEEN ACTIVATED, BUT AN EXAMPLE OF ITS FLEXIBILITY OCCURRED DURING THE GRANADA EFFORT WHEN CRAF CARRIERS WERE ASKED TO FLY AN ABOVE NORMAL AMOUNT OF PEACETIME AIRLIFT, FREEING MAC AIRCRAFT TO DO THEIR CONTINGENCY OPERATION. STAGE 1 IS ACTIVATED BY CINCPAC AND CARRIERS MUST RESPOND WITHIN 24 HOURS. STAGE II INCLUDES BOTH THE LONG-RANGE INTERNATIONAL AND DOMESTIC SEGMENTS. IT ALSO REQUIRES 24 HOUR RESPONSE BY THE CARRIERS. THIS STAGE MAY BE ACTIVATED BY THE SECDEF TO PROVIDE AIRLIFT FOR A MAJOR CONTINGENCY REQUIREMENT WHICH DOES NOT WARRANT FULL MORILIZATION. ALL SEGMENTS ARE ACTIVATED DURING STAGE III AND MAY BE ACTIVATED BY THE SECDEF ONLY AFTER A NATIONAL EMERGENCY IS DECLARED BY THE PRESIDENT OR CONGRESS. CARRIERS ARE GIVEN 48 HOURS TO RESPOND. THE 48 HOUR CRITERIA IS IMPORTANT SINCE THIS COMMITMENT MAY SERIOUSLY CURTAIL OPERATIONS OF THE AIRLINES. STAGE III IS THE BASIS OF A FULL NATIONAL MOBILIZATION EFFORT AND HAS THE GREATEST COMMITMENT ON THE PART OF THE CARRIERS AND DOD.

AIRCRAFT SHOWN WERE COMMITTED AS OF JANUARY 1986.

THE REMAINING PORTION OF THIS STUDY WILL FOCUS ON THE LONG-RANGE INTERNATIONAL SEGMENT.

# MAGNITUDE OF CURRENT LRI CRAF (STAGE III)

JAN 1986

## ● INTEGRAL PART OF THE AIRLIFT FORCE STRUCTURE.

<u>PASSENGER</u>				<u>MPM/DAY</u>
<u>AIRCRAFT TYPE</u>	<u>NUMBER OF AIRCRAFT</u>	<u>CARRIERS</u>		
DC-8/B707	14	RICH, UNITED, PORTS OF CALL, SKYSTAR		
B-767	5	TWA		
B-747	110	NORTHWEST, PAN AM, TOWER, TWA, UNITED		
DC-10	56	AMERICAN, AMERICAN TRANS AIR (AMT), ARROW, CONTINENTAL, EASTERN, NORTHWEST, UNITED		
L-1011-100	40 <u>225</u>	AMT, DELTA, TWA, HAWAIIAN, PAN AM, TOTAL AIR	CAPABILITY 141.6 GOAL 144.9	
<u>CARGO</u>				<u>MTM/DAY</u>
B-707	2	SOUTHERN AIR TRANSPORT		
DC-8	17	ARROW, EVERGREEN, TRANSAMERICA		
B-747	27	TIGER, WORLD, TRANSAMERICA, NORTHWEST		
DC-10	13	FEDERAL, WORLD		
DC-10	1	UNITED (CRAF ENHANCEMENT)		
B-747	3 <u>63</u>	PAN AM (CRAF ENHANCEMENT)	CAPABILITY 8.6 GOAL 11.3	

## CURRENT LRI CRAF (STAGE III)

OF THE TOTAL CRAF OF 366 AIRCRAFT, 288 AIRCRAFT ARE COMMITTED TO THE LRI CRAF. LRI CRAF REPRESENTS AN INTEGRAL PART OF THE AIRLIFT FORCE STRUCTURE. THIS CHART REFLECTS THE QUANTITY AND TYPE OF AIRCRAFT, BY CARRIER, PARTICIPATING IN LRI STAGE III AS OF JANUARY 1986. AIRLIFT CAPABILITY IS REFLECTED IN EITHER MILLION PASSENGER MILES OR MILLION TON MILES PER DAY.

IF THE MID-TERM AND LONG-TERM GOALS FOR THE LONG-RANGE INTERNATIONAL SEGMENT ARE TO BE MET, THE LRI SEGMENT MUST PROVIDE LIFT OF 144.9 MILLION PASSENGER MILES (MPM) PER DAY AND 11.3 MILLION TON MILES (MTM) PER DAY THROUGH THE YEAR 2014. THIS MAKES THE LRI SEGMENT A KEY PART OF ANY FORCE STRUCTURE COMPUTATION.

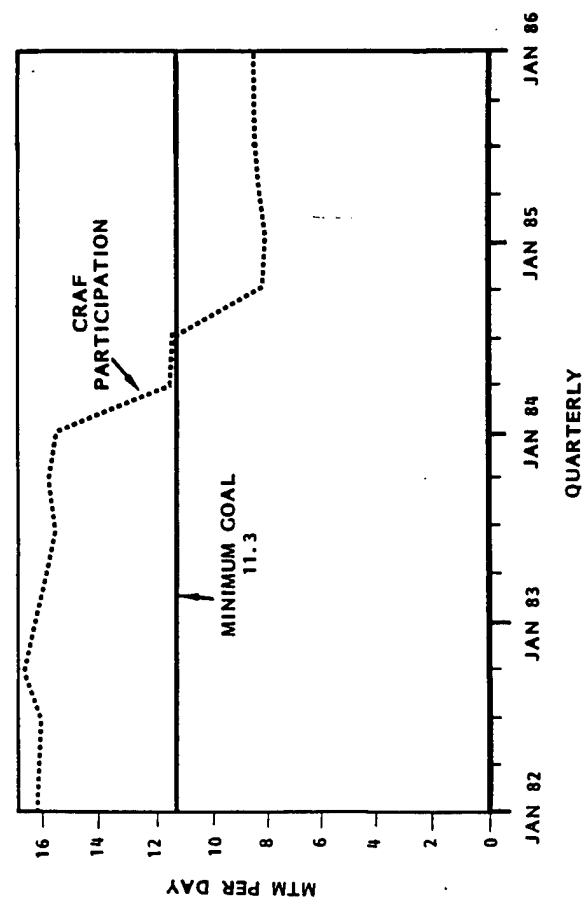
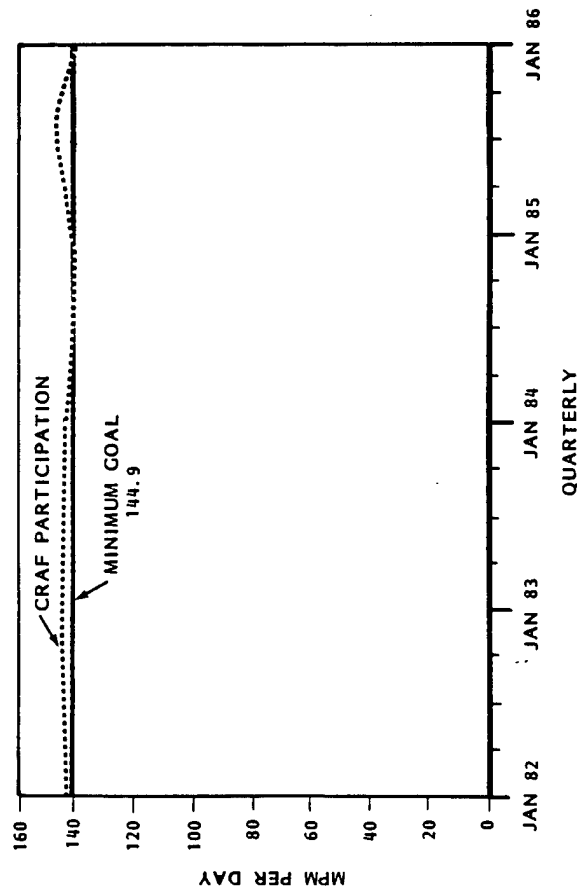
NOTE THAT WHILE PASSENGER CAPABILITY IS NEAR THE AIRLIFT MASTER PLAN MINIMUM GOAL OF 144.9 MPM/DAY, CARGO CAPABILITY IS WELL BELOW THE MINIMUM GOAL OF 11.3 MTM/DAY. ONLY 4 CARRIERS HAVE COMMITTED AIRCRAFT TO BOTH PASSENGER AND CARGO LIFT. IT SHOULD ALSO BE NOTED THAT THE UNITED DC-10 AND THE PAN AM B-747 AIRCRAFT ARE FROM THE CRAF ENHANCEMENT PROGRAM.

NEARLY ALL WARTIME TROOP MOVEMENT WILL BE ACCOMPLISHED BY PASSENGER CRAF AIRCRAFT. THE CARGO CRAF AIRCRAFT WILL BE UTILIZED PRIMARILY TO HAUL BULK AND SOME OVERSIZED CARGO. DUE TO STRUCTURAL LIMITATIONS (DOOR SIZE AND FLOOR STRENGTH) THE WIDE BODY AIRCRAFT ARE NOT TASKED TO CARRY MOST OF THE OUTSIZED CARGO IN A COMBAT-READY CONFIGURATION. A REVIEW OF US ARMY EQUIPMENT INDICATES ABOUT 340 TYPES OF ARMY VEHICLES ARE NOT LOADABLE ON THE B-747 (322 OUTSIZE, 18 OVERSIZE) AND AT LEAST FIVE ADDITIONAL VEHICLES ARE INCOMPATIBLE WITH THE DC-10.

ALTHOUGH CARGO CRAF CONTRIBUTES TO 30% OF TOTAL LIFT CAPABILITY, CARGO CRAF AIRCRAFT WILL BE UTILIZED TO SUPPLEMENT THE MILITARY ORGANIC AIRLIFT FLEET. ONE SHOULD NOT CONSIDER CARGO CRAF AS A SUBSTITUTE FOR THE MILITARY AIRLIFT FLEET WHICH IS DESIGNED TO AIRLIFT OUTSIZE, OVERSIZE AND BULK CARGO.

## STATEMENT OF THE PROBLEM

- LRI CRAFT PASSENGER CAPABILITY HAS REMAINED RELATIVELY CONSTANT.
- AIRLIFT MASTER PLAN (SEP 83) SETS A CONSTANT GOAL OF 144.9 MPM/DAY FOR THE LRI PASSENGER CRAFT.
- LRI CRAFT CAPABILITY HAS DECLINED 45% IN THE LAST 24 MONTHS
- AIRLIFT MASTER PLAN (SEP 83) SETS A CONSTANT GOAL OF 11.3 MTM/DAY FOR THE LRI CARGO CRAFT.



## THE PROBLEM

THE QUESTION THEN BECOMES TWO-FOLD: WHETHER PASSENGER AND CARGO CAPABILITY OF THE LRI CRAF WILL RETAIN A LEVEL OF COMMITMENT, AS ENVISIONED BY THE AIRLIFT MASTER PLAN; AND, WHETHER IT WILL MEET ITS SHARE OF THE AIRLIFT FORCE STRUCTURE GOAL.

FIRST, WE WILL ADDRESS PASSENGER CAPABILITY. THE AIRLIFT MASTER PLAN SETS A CONSTANT GOAL OF 144.9 MPM/DAY AND ASSUMES THAT AS OLDER AIRCRAFT RETIRE THEY WILL BE REPLACED WITH AIRCRAFT OF LIKE CAPABILITY. THIS IS OCCURRING TODAY WITH CRAF PARTICIPANTS PURCHASING NEW LRI PASSENGER AIRCRAFT.

THE CAPABILITY FOR PASSENGER LIFT HAS REMAINED RELATIVELY CONSTANT WITHIN RECENT YEARS EVEN THOUGH INDIVIDUAL CARRIERS AND NUMBERS OF AIRCRAFT HAVE CHANGED. BECAUSE OF THIS, WE WILL NOW TURN OUR ATTENTION AWAY FROM PASSENGER AIRLIFT, AND FOCUS ON CARGO CAPABILITY.

IF WE ADDRESS CARGO CAPABILITY WE SEE A DIFFERENT STORY. ONCE AGAIN THE AIRLIFT MASTER PLAN GOAL ASSUMES THE CARGO AIRLIFT INDUSTRY WILL REMAIN CONSISTENT WITH PREVIOUS YEARS.

HOWEVER, A MAJOR CHANGE HAS OCCURRED IN THE CARGO AREA OF CRAF, WHERE CAPABILITY HAS BEEN REDUCED BY 45% SINCE JANUARY 1984. THE REAL PROBLEM IS THAT WE ARE NO LONGER MEETING OUR MINIMUM CARGO GOALS. THEREFORE, THIS STUDY WILL FOCUS ON LRI CARGO CAPABILITY.

## **SCOPE**

- LONG-RANGE INTERNATIONAL CARGO SEGMENT
- STAGE III REPRESENTS FULLY MOBILIZED CAPABILITY

## **MEASURES OF EFFECTIVENESS**

- MILLIONS OF TON MILES PER DAY (MTM/DAY)
- CLOSURE DAYS REQUIRED TO COMPLETE AIRLIFT INTO A SPECIFIC THEATER

## STUDY SCOPE AND MEASURES OF EFFECTIVENESS

### SCOPE:

THIS STUDY WILL CONCENTRATE ON THE LONG-RANGE INTERNATIONAL CARGO SEGMENT, SINCE THIS IS THE CRAF SEGMENT WHICH DIRECTLY AFFECTS AIRLIFT DEFENSE GUIDANCE CLOSURE TIMES.

THE MOST DEMANDING SITUATIONS FOR BOTH DOD AND THE CARRIERS WILL EXIST WITHIN THE STAGE III ENVIRONMENT, WHICH REPRESENTS FULL NATIONAL MOBILIZATION CAPABILITY.

### MEASURES OF EFFECTIVENESS:

INTERNATIONAL CARGO LIFT CAPABILITY IS NORMALLY MEASURED IN MILLION TON MILES PER DAY.

THE TIME REQUIRED TO COMPLETE AIRLIFT INTO A THEATER IS REFLECTED IN CLOSURE DAYS.



## **EXTERNAL FACTORS**

- AIR FORCE CANNOT INFLUENCE
  - CHANGES IN COMPOSITION OF COMMERCIAL AIRLIFT FLEET
  - ECONOMIC FACTORS WHICH HAVE CHANGED OPERATING CONCEPTS OF AIRLINE INDUSTRY
- AIR FORCE CAN INFLUENCE
  - CRAF ELIGIBILITY AND CONTRACTUAL REQUIREMENTS
  - CRAF ENHANCEMENT PROGRAMS

## EXTERNAL FACTORS

THESE ARE FOUR OF THE MAJOR FACTORS IMPACTING THE CRAF CAPABILITY.

THOSE OVER WHICH THE AIR FORCE HAS ALMOST NO INFLUENCE INCLUDE SOME VERY BASIC CHANGES IN THE COMMERCIAL AIRLIFT INDUSTRY. THESE ARE ELEMENTS WHICH MUST BE ACCEPTED AND DEALT WITH, BUT WHICH ARE MOSTLY BEYOND THE CAPABILITY OF DOD OR EVEN THE CARRIER INDUSTRY TO CHANGE.

THERE ARE LAWS AND REGULATIONS WHICH GOVERN THE RULES FOR CRAF PARTICIPATION AND CRAF ENHANCEMENT PROGRAMS. THESE ARE ELEMENTS WHICH CAN BE INFLUENCED. CHANGES IN THESE AREAS COULD HAVE A POSITIVE IMPACT ON THE CRAF PROGRAM. SOME OF THE AREAS ARE PRESENTLY BEING ADDRESSED BY MAC AND DESERVE CAREFUL CONSIDERATION AT ALL LEVELS.

WE WILL DISCUSS EACH AREA IN DETAIL AS WE PROGRESS THROUGH THE BRIEFING.

## **RECENT DEVELOPMENTS IN AIRLINE INDUSTRY**

- DEREGULATION OF AIRLINE INDUSTRY CONTRIBUTED TO:
  - REDUCTION OF CARGO AIRCRAFT BY SOME MAJOR US CARRIERS TO INCREASE EFFORT IN THE PASSENGER MARKET
  - GROWTH OF SMALL PACKAGE CARRIERS (FED EX) & INDIRECT CARRIERS (EMERY, UPS), WHO ARE NOT PARTICIPATING FULLY IN LRI CARGO CRAF
- FAA NOISE ABATEMENT STANDARDS (1 JAN 85) ACCELERATED PHASE-OUT OF DC-8 & B-707 NARROW BODY AIRCRAFT
- MIGRATION OF CARGO BUSINESS FROM MAIN DECK TO LOWER LOBE
- DECREASED DAILY OPERATION AND SUBSEQUENT FEWER CREWS MEANS INCREASED SERVICE LIFE FOR SMALL PACKAGE CARRIERS AIRCRAFT
- MORE AIRLIFT FUNCTIONS CONTRACTED OUT

**NEW-FLEET COMPOSITION HAS FEWER  
LRI CARGO CRAF PARTICIPANTS**

## RECENT DEVELOPMENTS IN THE AIRLINE INDUSTRY

INDUSTRY DEREGULATION NOT ONLY RESULTED IN NEW CARRIERS BUT ALSO IN MAJOR CHANGES IN THE ROUTES HISTORICALLY FLOWN BY ALL CARRIERS. SOME LARGE US CARRIERS, WHO WERE FOR YEARS THE BACKBONE OF THE CRAF PROGRAM, NO LONGER OPERATE PURE-CARGO AIRCRAFT. THOSE AIRCRAFT WERE DETERMINED NOT TO BE PROFITABLE AND HAVE BEEN SOLD OR LEASED TO INCREASE EFFORT IN THE PASSENGER MARKET. THE COMMERCIAL AIRLIFT INDUSTRY IS A DYNAMIC INDUSTRY. IN THE 6 YEARS SINCE DEREGULATION, 120 AIRLINES HAVE GONE BANKRUPT OR CEASED OPERATIONS. THESE TRENDS AFFECT THE NUMBER OF AIRCRAFT AVAILABLE TO CRAF.

NEW ALL-CARGO CARRIERS HAVE EMERGED. THE SMALL PACKAGE CARRIERS, WHO OPERATE ONLY A FEW HOURS PER DAY WITH ONLY THE MINIMUM NUMBER OF CREWS REQUIRED TO MAKE THEIR BUSINESS PROFITABLE, AND WHAT WE WILL CALL INDIRECT CARRIERS, WHO SUBCONTRACT THE OPERATION OF THEIR AIRCRAFT, MAINTENANCE, TERMINAL OPERATION AND OR CARGO HANDLING, ARE REPLACING THE MAJOR CARRIERS IN THE ALL-CARGO INDUSTRY. SOME OF THESE NEW CARRIERS ARE EITHER UNWILLING OR UNABLE TO PARTICIPATE IN THE CRAF PROGRAM BECAUSE THEY FEEL IT WILL IMPACT THEIR COMMERCIAL OPERATIONS.

EVEN BEFORE THE NOISE ABATEMENT STANDARD REGULATIONS BECAME EFFECTIVE 1 JAN 85, MANY OF THE OLDER AIRCRAFT WERE RETIRED OR SOLD TO CARRIERS WHO DO NOT PARTICIPATE IN CRAF. IMPLEMENTATION OF THE NOISE REGULATIONS CAUSED EARLY RETIREMENT OF DC-8 AND B-707 AIRCRAFT. ONE BRIGHT SPOT, HOWEVER, IS THE NUMBER OF THESE AIRCRAFT WHICH MAY STILL BE OUTFITTED WITH SO-CALLED "HUSH KITS," WHICH WOULD ALLOW THEM TO BE USED BY CARRIERS WHO MIGHT THEN PARTICIPATE IN THE CRAF PROGRAM.

ALONG WITH CHANGES IN INDUSTRY REGULATION AND SCHEDULED AIRCRAFT RETIREMENT CAME COMPETITIVE SITUATIONS WHICH ALTERED THE WAY MAJOR CARRIERS OPERATED. SOME MAJORS (FOR INSTANCE, AMERICAN, PAN AM, AND CONTINENTAL) HAVE STOPPED MAIN DECK CARGO OPERATIONS WITHIN THE PAST 2 YEARS. NEW PASSENGER AIRCRAFT, WITH MORE EFFICIENT AND EFFECTIVE POWER PLANTS, HAVE LOWER LOBE CAPACITY WHICH FAR EXCEEDS THE REQUIREMENT FOR TRANSPORT OF MAIL AND BAGGAGE. THIS HAS BECOME THE METHOD FOR MAJOR CARRIERS TO TRANSPORT LARGE QUANTITIES OF CARGO ALONG THEIR PASSENGER ROUTES, ADDING TO REVENUE WHILE REDUCING THE REQUIREMENT TO OPERATE PURE-CARGO AIRCRAFT. THE INDUSTRY TERM FOR THIS CHANGE IS CALLED, MIGRATION OF CARGO BUSINESS FROM THE MAIN DECK TO LOWER LOBE.

PREVIOUS INDUSTRY ASSUMPTIONS REGARDING THE NORMAL SERVICE LIFE OF EXISTING AIRCRAFT ARE UNDERGOING CHANGE. NEW ENGINES, BETTER CORROSION TREATMENT AND OTHER TECHNIQUES WHICH ARE BEING APPLIED TO AIRCRAFT DURING SCHEDULED MAINTENANCE EFFORTS, HAVE EXTENDED THE LENGTH OF TIME WE CAN EXPECT THESE AIRCRAFT TO PERFORM. THIS MAKES USED AIRCRAFT MORE COMPETITIVE WHEN COMPARED TO NEW AIRCRAFT. THUS ONLY ONE CARRIER HAS ORDERED PURE-CARGO AIRCRAFT IN THE LAST 5 YEARS. THE SMALL PACKAGE CARRIERS (SPC) HAVE LOWERED THE ACTIVITY RATE ON THEIR OLDER AIRCRAFT WHICH FURTHER REDUCES THE CONSUMPTION OF AIRCRAFT SERVICE LIFE. THE NET EFFECT IS THE SPC REQUIRE FEWER AIRCREWS.

OTHER CHANGES HAVE OCCURRED IN THE WAY BOTH NEW CARRIERS AND MANY OLDER CARRIERS DO BUSINESS. SOME HAVE DECIDED TO CONTRACT OUT THEIR MAINTENANCE; WHILE OTHERS USE PART-TIME OR CONTRACT CARGO HANDLERS. STILL OTHERS LEASE THEIR AIRCRAFT UNDER AGREEMENTS WHICH ARE NOT COMPATIBLE WITH CRAF. OTHER CARRIERS OWN THEIR AIRCRAFT BUT LEASE OUT THEIR OPERATIONS AND ARE NOT ALLOWED TO PARTICIPATE DIRECTLY IN CRAF.

IN SHORT, THE PRESENT COMMERCIAL FLEET COMPOSITION HAS FEWER LRI CARGO CRAF PARTICIPANTS.

## **CRAF PARTICIPATION**

- PRESENTLY 13 B-747 WIDE BODY EQUIVALENTS ARE NON-PARTICIPANTS  
(17 WIDE BODY AIRCRAFT)
- MAJOR US CARRIERS COMMITTED TO CRAF
  - 91% OF WIDE BODY AIRCRAFT PARTICIPATE (39 of 43)
- SMALL PACKAGE CARRIERS (UPS, EMERY, FED EX) NOT FULLY COMMITTED TO CRAF
  - ONLY 28% OF WIDE BODY AIRCRAFT PARTICIPATE (5 of 18) BY SMALL PACKAGE CARRIERS

## CRAF PARTICIPATION

PRESENTLY, 13 WIDE BODY B-747 EQUIVALENTS (B-747 EQUIVALENT EQUALS .154 MTM) [17 WIDE BODY AIRCRAFT] ARE OPERATED BY CARRIERS WHO DO NOT OR CANNOT PARTICIPATE FULLY IN CRAF. THESE AIRCRAFT ARE IMPORTANT TO THE CRAF, AND ACTION SHOULD BE TAKEN TO INCREASE THE NUMBER COMMITTED TO CRAF.

THE PRESENT CRAF RULES APPEAR TO APPLY MOSTLY TO THE LARGE MAJOR CARRIERS, AS EVIDENCED BY THE 91% OF THEIR WIDE BODY AIRCRAFT ENROLLED IN CRAF. THIS REPRESENTS 39 OF 43 WIDE BODY AIRCRAFT.

THE SMALL PACKAGE CARRIERS CONTRIBUTE 28% OF THEIR WIDE BODY AIRCRAFT TO THE LRI CARGO CRAF. THIS REPRESENTS 5 OF 18 WIDE BODY AIRCRAFT. NEW CRAF RULES, EDUCATIONAL PROGRAMS, OR CHANGES IN PHILOSOPHY MAY NEED TO BE ADOPTED TO ENCOURAGE THEIR PARTICIPATION.

## **CRAF ELIGIBILITY AND CONTRACTUAL REQUIREMENTS**

- DOD's PEACETIME AIRLIFT MARKET PROVIDES AN INCENTIVE FOR PARTICIPATION
- CRAF PARTICIPANT AGREES TO UPON ACTIVATION
  - OPERATE WITHIN SENIOR LODGER SYSTEM
  - PROVIDE 4 CREWS PER AIRCRAFT
  - MAINTAIN A 10 HR/DAY SUSTAINED UTE RATE

## CRAF ELIGIBILITY AND CONTRACTUAL REQUIREMENTS

TO PARTICIPATE IN CRAF, A CARRIER MUST HOLD A CERTIFICATE OF CONVENIENCE AND NECESSITY ISSUED ACCORDING TO THE FEDERAL AVIATION ACT, AND MUST MAINTAIN AN OPERATING CERTIFICATE ISSUED ACCORDING TO PART 121 OF THE FEDERAL AIR REGULATIONS. THE RATIONALE FOR THOSE REQUIREMENTS IS TO ENSURE CRAF IS RELIABLE AND SAFE.

CONTRACTS WITH CARRIERS ARE NEGOTIATED ON AN ANNUAL BASIS. AS AN INCENTIVE TO COMMIT AIRCRAFT TO THE CRAF PROGRAM, A CARRIER IS GIVEN RIGHT OF FIRST REFUSAL IN TRANSPORTING GOVERNMENT FUNDED CARGO AND PASSENGERS DURING PEACETIME. THE ALLOTMENT IS IN SO-CALLED MOBILIZATION POINTS AWARDED ACCORDING TO THE PERCENTAGE OF THE CARRIERS FLEET COMMITTED TO CRAF. IT IS DOD POLICY TO FLY 90% OF DOD PASSENGERS VIA COMMERCIAL AIR IN PEACETIME, BUT NO SUCH POLICY EXISTS FOR CARGO, THUS LIMITING FINANCIAL INCENTIVES TO CARGO CARRIERS TO COMMIT TO THE CRAF PROGRAM. THE AIRCRAFT COMMITTED BY CONTRACT TO CRAF ARE IDENTIFIED BY TAIL NUMBER. BASED ON MAINTENANCE, AIRCRAFT LOSSES, SALES, TRADES, ETC, CARRIERS ARE ALLOWED TO CHANGE AIRCRAFT MONTHLY. THIS IS MOSTLY A BOOKKEEPING PROBLEM, WHICH MAC/XPW HANDLES AND REPORTS, BUT THE FLUCTUATIONS CAN MAKE IT DIFFICULT TO IDENTIFY A SPECIFIC NUMBER OF AIRCRAFT AS AVAILABLE AT ANY SPECIFIC TIME. IN ADDITION, CRAF MEMBERS MUST MEET PERFORMANCE STANDARDS TO CONTINUE TO BE PART OF CRAF, NOR CAN MORE THAN 40% OF THEIR TOTAL BUSINESS BE WITH DOD.

UPON ACTIVATION A CRAF CARRIER MAY OPERATE WITHIN THE "SENIOR LODGER SYSTEM" WHEREIN A MAJOR CARRIER AT A GIVEN AIRPORT FUNCTIONS AS OPERATIONS MANAGER, MAINTENANCE, AND PARTS SUPPLIER FOR ALL CRAF CARRIERS OPERATING THROUGH THE LOCATION. THIS PROGRAM WAS DESIGNED TO ELIMINATE SOME OF THE SCHEDULING AND LOGISTIC PROBLEMS IN THE CRAF.

CARRIERS COMMIT TO CRAF THOSE AIRCRAFT FOR WHICH THEY CAN PROVIDE 4 CREWS PER AIRCRAFT AND MAINTAIN A SUSTAINED UTE RATE OF 10 HOURS PER DAY. AN EXAMPLE OF THE IMPACT OF APPLICATION OF THIS RULE IS THE INVOLVEMENT OF FEDERAL EXPRESS IN THE CRAF PROGRAM. THEY HAVE 12 AIRCRAFT WHICH QUALIFY, BUT THEY ONLY AVERAGE 2 CREWS PER AIRCRAFT. AS A RESULT ONLY 5 OF FEDERAL EXPRESS'S DC-10's ARE IN THE CRAF PROGRAM.



## **CRAF ENHANCEMENT PROGRAMS**

- DESIGNED TO ADD LRI CARGO CAPABILITY
- PASSENGER AIRCRAFT MODIFIED TO CARGO CONVERTIBLE CONFIGURATION
  - UNITED: 1 DC-10; .085 MTM/DAY (TOTAL)
  - PAN AM: 19 B-747s; 2.9 MTM/DAY (TOTAL)
    - APPROXIMATELY \$27 MILLION PER AIRCRAFT
    - 12 YEAR CONTRACT
- CRAF ENHANCEMENT LAW
  - 100% FUNDING FOR CARGO CONVERTIBLE USED IN PASSENGER OPERATIONS
  - 50% FUNDING FOR CARGO CONVERTIBLE USED IN COMBINATION OPERATIONS

## CRAF ENHANCEMENT PROGRAMS

THE PURPOSE OF THE CRAF ENHANCEMENT PROGRAM IS TO INCREASE LRI CARGO CAPABILITY. THE PRESENT CRAF ENHANCEMENT PROGRAM INVOLVES MODIFYING EXISTING PASSENGER AIRCRAFT SO THAT THEY MAY BE CONVERTED TO TRANSPORT CARGO WHEN NEEDED.

IN 1983, CRAF INCLUDED ALMOST 100% OF THE LONG-RANGE CARGO AIRCRAFT. IN 1985, APPROXIMATELY 60% OF THE AIRFRAMES OPERATED BY US CARRIERS WERE A PART OF THE CRAF FLEET. TOTAL AIRCRAFT COMMITTED TO CRAF HAS DECREASED BY 43% SINCE 1982. SOME OF THESE CHANGES WERE FORESEEN AND EFFORTS WERE STARTED AT THE TURN OF THE DECADE TO ESTABLISH THE CRAF ENHANCEMENT PROGRAM IN AN ATTEMPT TO INCREASE LRI CRAF CARGO CAPABILITY.

THE FIRST PRODUCT OF THIS EFFORT WAS THE CONVERSION OF A UNITED DC-10 ON THE PRODUCTION LINE IN 1983. BY ADDING THE CAPABILITY FOR EITHER COMMERCIAL OR 463L RAIL SYSTEMS, A STRONGER FLOOR, AND A CARGO DOOR, THE OVERALL AIRLIFT CAPABILITY WAS INCREASED .085 MTM/DAY BY THIS ONE DC-10 ENHANCED AIRCRAFT.

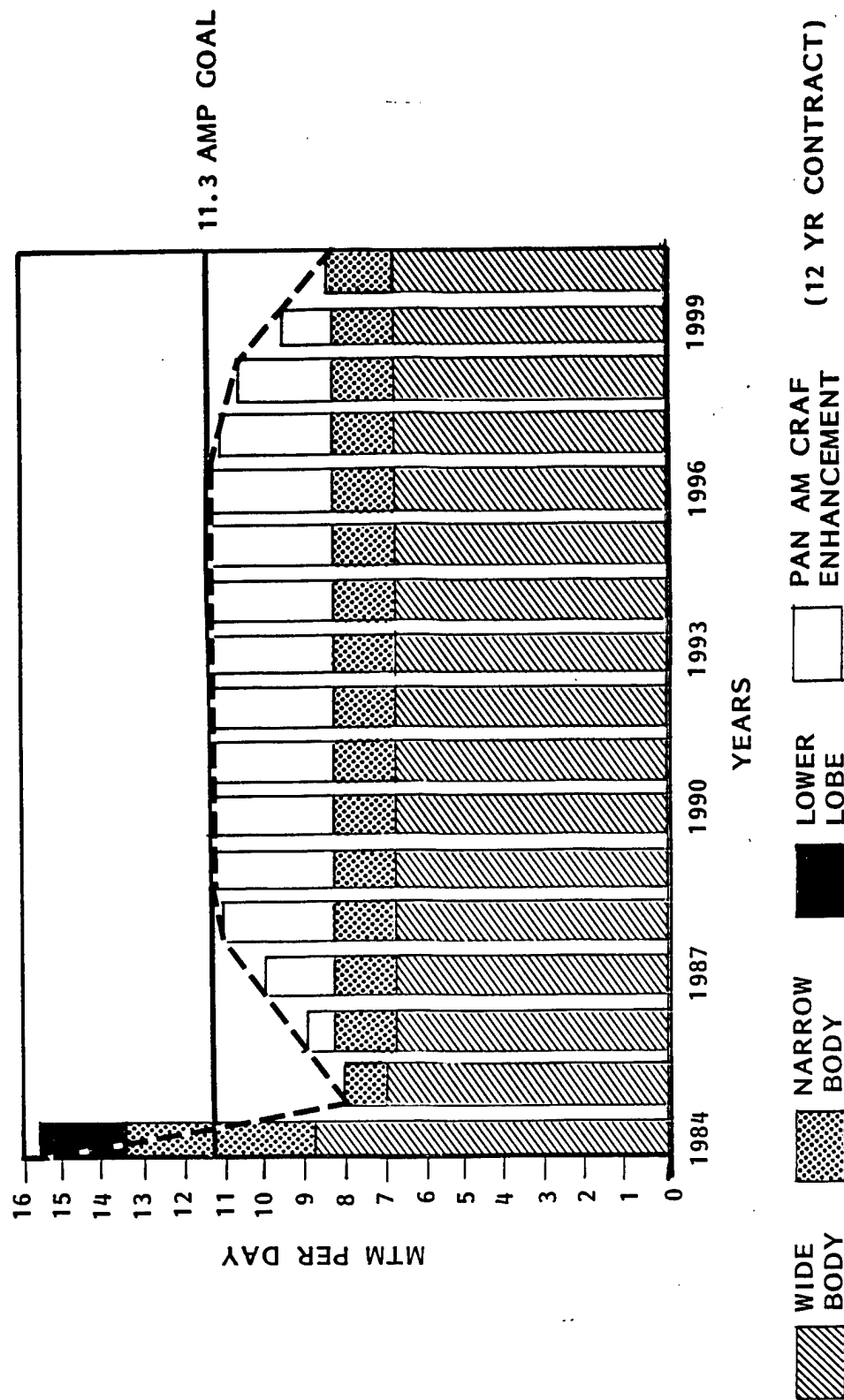
THE PRESENT PROGRAM TO MODIFY 19 PAN AM B-747s WILL PROVIDE AN ADDITIONAL 2.9 MTM/DAY CAPABILITY. FOUR OF THESE CRAF ENHANCED AIRCRAFT ENTERED SERVICE IN 1985. FUNDING HAS BEEN APPROVED FOR 14 OF THE PLANNED 19 AIRCRAFT. COSTS FOR CONVERSION OF THESE AIRCRAFT, TIME LOST FROM SERVICE, AND INCREASED FUEL COST FOR 12 YEARS DUE TO ADDITIONAL AIRCRAFT WEIGHT ARE ALL PAID BY DOD AND INITIALLY ESTIMATED AT \$27 MILLION PER AIRCRAFT. THIS IS ONE-SIXTH OF THE COST OF PURCHASING ORGANICALLY-OPERATED CARGO AIRCRAFT. THE FOUR AIRCRAFT PRODUCED IN 1985 ARE SCHEDULED TO LEAVE THE CRAF PROGRAM IN 1997, DUE TO THE 12 YEAR NATURE OF THE CONTRACT.

THE EXISTING CRAF ENHANCEMENT LAW REQUIRES THAT THE CARRIER OPERATE THE CONVERTED AIRCRAFT IN A PASSENGER MODE TO RECEIVE 100% FUNDING FOR THE ITEMS LISTED ABOVE. IN ADDITION, THE LAW REQUIRES THAT MODIFICATIONS TO THE AIRCRAFT BE "CARGO CONVERTIBLE," WHICH PRECLUDES CONVERSION OF PASSENGER AIRCRAFT TO PURE-CARGO AIRCRAFT UNDER THE CRAF ENHANCEMENT PROGRAM.

IF A CARRIER CONVERTS A PASSENGER AIRCRAFT TO A CARGO CONVERTIBLE CONFIGURATION BUT USES THE AIRCRAFT IN COMBINATION CARGO AND PASSENGER OPERATIONS, THEN THE CARRIER IS PROVIDED 50% FUNDING FOR CONVERSION, ONLY.

# LRI CARGO CRAF CAPABILITY

- AMP PLANNING GOAL: 11.3 MTM/DAY (CURRENT CRAF: 8.4 MTM/D + CRAF ENHANCEMENT PROGRAM: 2.9 MTM/D)
- REDUCED CAPABILITIES
  - 1984 DELETION OF LOWER LOBE CARGO
  - PHASE OUT OF NARROW BODY AIRCRAFT
  - SOME MAJOR CARRIERS DEFER WIDE BODY CARGO HAULING



## LRI CARGO CRAF CAPABILITY

THIS CHART REFLECTS CRAF CAPABILITY THRU THE YEAR 2000 FOR WIDE BODY, NARROW BODY AND CRAF ENHANCED AIRCRAFT. THIS IS THE METHODOLOGY OUTLINED IN THE AIRLIFT MASTER PLAN WHICH STATES THAT 8.4 MTM/DAY FROM CRAF PARTICIPANTS PLUS 2.9 MTM/DAY FROM THE CRAF ENHANCEMENT PROGRAM PRODUCES A TOTAL OF 11.3 MTM/DAY. THE AIRLIFT MASTER PLAN FURTHER STATES THAT AS AIRCRAFT RETIRE THEY WILL BE REPLACED WITH EQUALLY CAPABLE AIRCRAFT. THE EQUALLY CAPABLE AIRCRAFT THAT COULD BE USED ARE THE B-747, DC-10, MD-11, AND B-767, HOWEVER, FEDERAL EXPRESS IS THE ONLY CARRIER TO PURCHASE NEW CARGO AIRCRAFT (DC-10) IN THE LAST 4 YEARS.

STARTING FROM THE LEFT COLUMN (1984), THE CHART REFLECTS THE REDUCTION WHICH HAS OCCURRED IN LIFT CAPABILITY IN THREE AREAS: LOWER LOBE, NARROW BODY, AND WIDE BODY. THE LOWER LOBE OF PASSENGER AIRCRAFT WAS DELETED FROM COMPUTATIONS IN MARCH OF 1984. THE RATIONALE WAS THAT PASSENGER AIRCRAFT FILLED WITH COMBAT TROOPS WILL CARRY ENOUGH OF THEIR OWN MOBILITY AND UNIT EQUIPMENT TO FILL THE LOWER LOBE.

ALSO CONTRIBUTING TO THIS DROP WAS THE RETIREMENT OF THE NARROW BODIED DC-8 AND B-707 AIRCRAFT DUE TO FAA NOISE REGULATIONS (SHOWN BY THE DOTTED PORTION OF THE BAR). THE REDUCTION IN WIDE BODY CAPABILITY IS DUE TO THE SALE AND LEASE OF WIDE BODIES BY THE MAJOR CARRIERS TO NON-CRAF PARTICIPANTS.

STARTING IN 1985, THE DOTTED LINE IS THE SUMMATION OF 8.4 MTM FROM CRAF, WIDE AND NARROW BODY, AIRCRAFT CAPABILITY PLUS THE SCHEDULED ADDITION OF 2.9 MTM FROM THE PAN AM CRAF ENHANCEMENT PROGRAM.

ACCORDING TO THE AIRLIFT MASTER PLAN, CRAF CAPABILITY IS ENVISIONED TO REMAIN CONSTANT THROUGH 2014. BARRING INCREASED PARTICIPATION OR ADDITION OF CRAF ENHANCEMENT PROGRAMS, CAPABILITY WILL ACTUALLY FALL OFF IN THE LATE 1990'S. THIS IS DUE, PRIMARILY, TO THE 12 YEAR NATURE OF THE PRESENT CRAF ENHANCEMENT PROGRAM. THE B-747 AIRCRAFT'S ORIGINAL SERVICE LIFE WAS ENVISIONED AS 60,000 HOURS. WORK BEING ACCOMPLISHED DURING THE CONVERSION BY BOEING IN CONJUNCTION WITH FAA AGREEMENT HAS EXTENDED THE SERVICE LIFE OF THE CRAF ENHANCED AIRCRAFT TO 100,000 HOURS. NORMALLY, THESE PASSENGER AIRCRAFT WILL FLY IN EXCESS OF 3000 HOURS/YEAR. GIVEN THIS EXTENDED LIFE TO 100,000 HOURS, THE 12 YEAR CONTRACT SEEMS REASONABLE.

NOTE: CRAF CAPABILITY COULD FURTHER DECLINE IN THE LATE 1990'S DUE TO THE RETIREMENT OF NARROW BODY AIRCRAFT. TODAY THE AVERAGE AGE OF NARROW BODY AIRCRAFT IS APPROXIMATELY 18 YEARS, ALMOST TWICE THE AVERAGE AGE OF WIDE BODY AIRCRAFT. LONG-RANGE NARROW BODY AIRCRAFT ARE NO LONGER MANUFACTURED.

## **WAYS TO INCREASE LRI CARGO CRAF PARTICIPATION**

- ESTABLISH ADDITIONAL CRAF ENHANCEMENT PROGRAMS
- MANAGE EFFORTS TO OBTAIN WIDER PARTICIPATION

## WAYS TO INCREASE LRI CRAF PARTICIPATION

WE WILL NOW EXAMINE WAYS TO INCREASE THE CAPABILITY OF THE CRAF PROGRAM, WHILE RETAINING THE BEST FEATURES OF THE CRAF PROGRAM (I.E. THE 24-48 HOUR RESPONSIVENESS NEEDED TO SUPPORT DG REQUIREMENTS AND THE CARRIERS' PARTICIPATION).

PROPOSALS TO ESTABLISH ADDITIONAL CRAF ENHANCEMENT PROGRAMS, AND MANAGE EFFORTS TO OBTAIN WIDER PARTICIPATION WILL BE ADDRESSED IN THE FOLLOWING CHARTS.

## **ESTABLISH ADDITIONAL CRAF ENHANCEMENT PROGRAMS**

- CONVERT EXISTING PASSENGER AIRCRAFT TO CARGO CONVERTIBLE
- CONVERT NEW PASSENGER AIRCRAFT TO CARGO CONVERTIBLE
- CONVERT EXISTING PASSENGER AIRCRAFT TO CARGO CONVERTIBLE,  
BUT USE IN FREIGHTER OPERATIONS
  - AS LITTLE AS 1/5 OF CURRENT CRAF ENHANCEMENT PROGRAM
  - REQUIRES REVISION OF CURRENT CRAF ENHANCEMENT LAW

## ESTABLISH ADDITIONAL CRAF ENHANCEMENT PROGRAMS

PRESENTLY, IT COSTS DOD APPROXIMATELY \$27 MILLION PER AIRCRAFT TO PAY PAN AM TO PULL THEIR PASSENGER R-747 OUT OF SERVICE, MODIFY IT TO BE CARGO CONVERTIBLE FOR BOTH COMMERCIAL AND MILITARY OPERATION, AND TO OPERATE THE AIRCRAFT (WITH THE ADDED WEIGHT) AS A PASSENGER AIRCRAFT FOR 12 YEARS. ADDITIONAL PROGRAMS OF THIS TYPE WOULD INCREASE CAPABILITY.

EQUIPPING NEW PASSENGER AIRCRAFT TO BE CARGO CONVERTIBLE WHILE ON THE PRODUCTION LINE, WOULD BE ANOTHER WAY TO INCREASE CAPABILITY. THERE IS PRESENTLY NO PROGRAM WHICH ALLOWS DOD TO ENTICE OR INTEREST CARRIERS ORDERING NEW PASSENGER AIRCRAFT TO EQUIP THEM ACCORDINGLY. IF SUCH A PROGRAM WAS INSTITUTED CAPABILITY WOULD INCREASE.

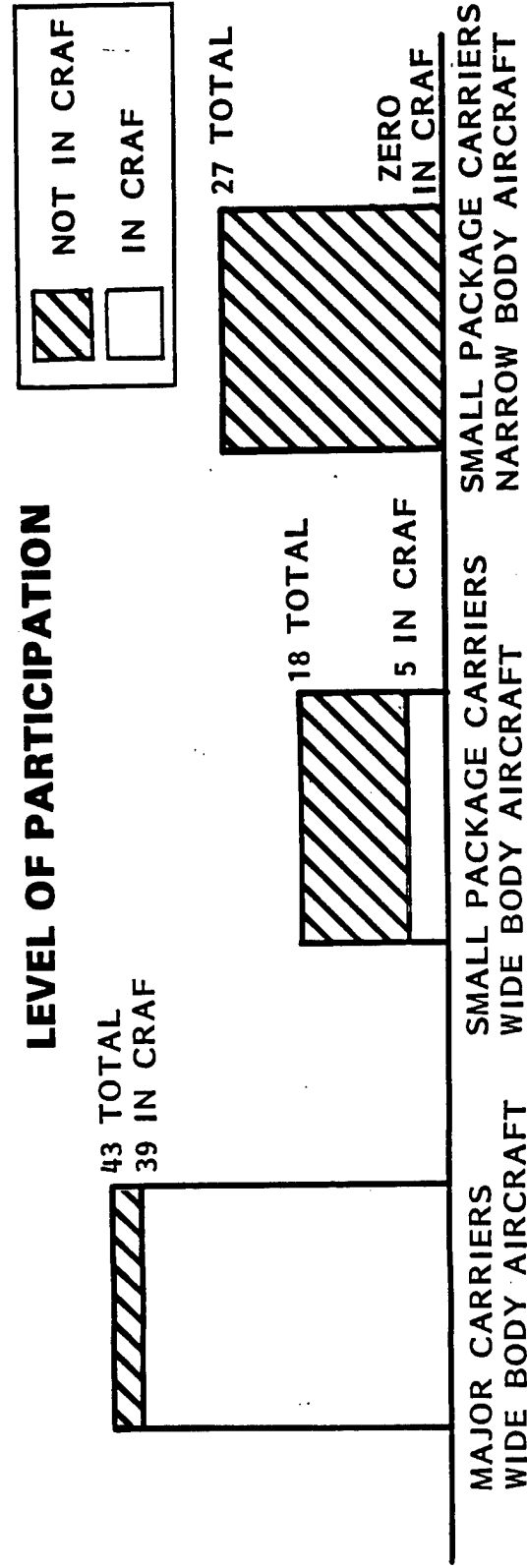
THE EXISTING CRAF ENHANCEMENT LAW GOVERNING MODIFICATION OF COMMERCIAL AIRCRAFT FOR USE IN CRAF AS CARGO LIFTERS COULD BE CHANGED TO TAKE ADVANTAGE OF DEVELOPMENTS IN THE AIR INDUSTRY. IN ORDER TO RECEIVE 100% DOD FUNDING, THE CARRIER MUST OPERATE THE AIRCRAFT FOR PASSENGER SERVICE ONLY. IF A CARRIER OPERATES IN A COMBINATION MODE, HE BEARS 50% OF THE CONVERSION COSTS AND ALL OF THE OTHER COSTS. IT MAY BE POSSIBLE TO EFFECT ENHANCEMENT OF SOME AIRCRAFT FOR AS LITTLE AS ONE-FIFTH THE COST OF THE PRESENT CONTRACT IF A FEW BASIC CHANGES CAN BE MADE TO THE LAW GOVERNING THE PROGRAM (E.G., TAKE ADVANTAGE OF EXISTING PASSENGER AIRCRAFT WHICH HAVE BEEN PURCHASED BY CARGO CARRIERS AND ARE IN THE MODIFICATION LINES BEING CONVERTED TO CARGO AIRCRAFT). HOWEVER, A CHANGE IN THE LAW TO ALLOW THEIR OPERATION AS CARGO AIRCRAFT DURING PEACETIME MIGHT BE CRITICIZED AS A FORM OF SUBSIDY.



## WAYS TO INCREASE LRI CARGO CRAF PARTICIPATION

- MANAGE EFFORTS TO OBTAIN WIDER PARTICIPATION
- SELECTIVELY ADJUST CREW RATIO REQUIREMENT
- PERMIT CARRIER SPECIFIC SUSTAINED UTE RATES
- ESTABLISH SURGE UTE RATES
- INCENTIVES OTHER THAN PEACETIME BUSINESS

### LEVEL OF PARTICIPATION



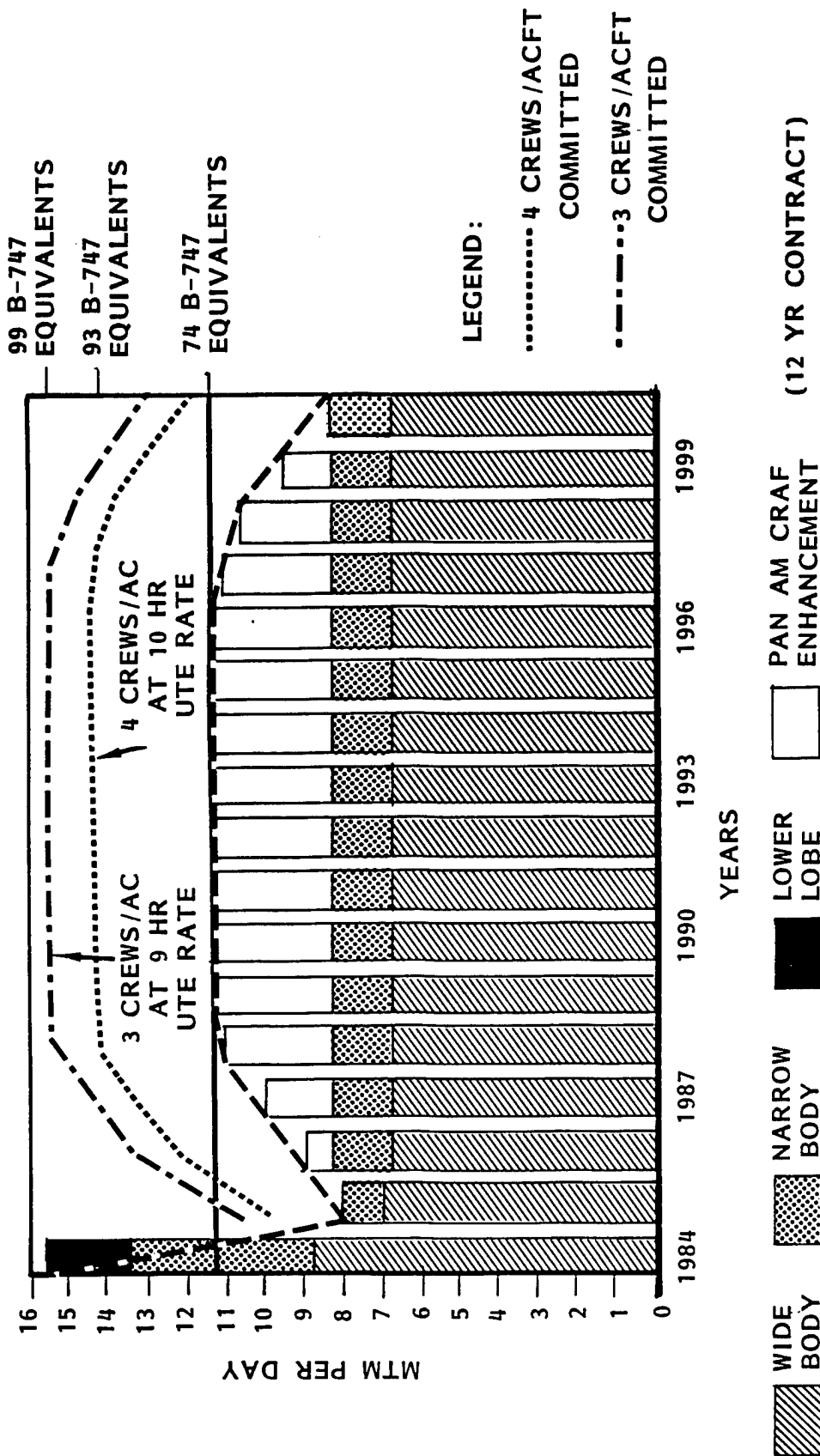
## WAYS TO INCREASE LRI CARGO CRAF PARTICIPATION

MANAGEMENT EFFORTS TO OBTAIN WIDER PARTICIPATION ARE ANOTHER WAY TO INCREASE CAPABILITY. MANAGEMENT INITIATIVES THAT CAN BE USED WITH AIRCRAFT IN CRAF (SELECTIVELY ADJUST CREW RATIO REQUIREMENT, PERMIT CARRIER SPECIFIC SUSTAINED UTE RATES, AND ESTABLISH SURGE UTE RATES) WILL BE ADDRESSED IN THE NEXT TWO SLIDES. THESE INITIATIVES WOULD BE BASED ON CARRIER SPECIFIC CONTRACTS WHICH ALLOW CARRIERS TO COMMIT AIRCRAFT BASED UPON THEIR RESPECTIVE CAPABILITY, VICE A SINGLE CONTRACT FOR ALL PARTICIPANTS AND WOULD PROVIDE A POTENTIAL TOWARD INCREASING PARTICIPATION.

INCENTIVES OTHER THAN PEACETIME BUSINESS, SUCH AS AIRFIELD OPERATING RIGHTS FOR TRANSPORTATION OF DOD CARGO, GUARANTEED SERVICES CONTRACTS, FINANCIAL INCENTIVES, DIFFERENT RULES FOR ASSESSING MOBILIZATION POINTS BASED ON LEVEL OF STAGE COMMITMENT, AND PARTIAL YEAR CONTRACTS ARE MANAGEMENT POSSIBILITIES BEING PURSUED BY AF/LET & MAC. THESE MANAGEMENT EFFORTS ARE DESIGNED TO ATTRACT CARRIERS INTO CRAF.

THE BAR GRAPHS ILLUSTRATE THE LEVEL OF PARTICIPATION IN THE CRAF BY THE MAJOR AND SMALL PACKAGES CARRIERS. WE WILL NOW FOCUS ON THE AIRCRAFT NOT COMMITTED TO CRAF.

# INCREASE IN LRI CARGO CAPABILITY CAUSED BY VARYING CREW RATIO



## ● POTENTIAL CAPABILITY OF LOW CREW RATIO CARGO CARRIERS

- PARTICIPATION BY UPS, FEDERAL EXPRESS, AND EMERY WOULD REPRESENT:
  - AN ADDITIONAL 2.9 MTM/D OR 19 B-747 EQUIVALENTS (4 CREWS/AC AT 10 HR UTE RATE)
  - AN ADDITIONAL 3.9 MTM/D OR 25 B-747 EQUIVALENTS (3 CREWS/AC AT 9 HR UTE RATE)

INCREASE IN LRI CARGO CAPABILITY  
CAUSED BY VARYING CREW RATIOS

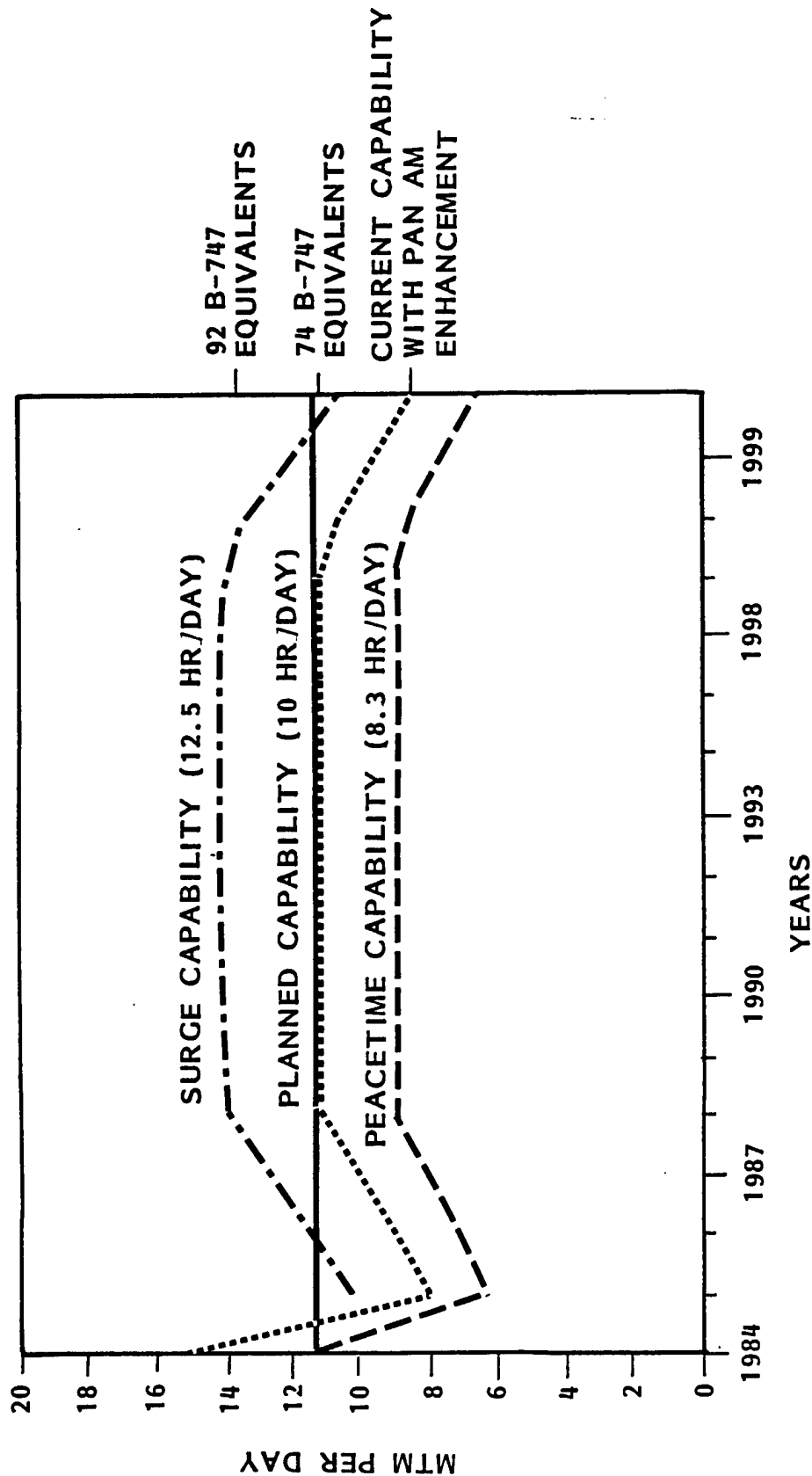
IN RELATION TO THE PRESENT CRAF PROGRAM THERE IS A POTENTIAL TO INCREASE CAPABILITY IF WE CAN ESTABLISH A DIFFERENT CREW RATIO FOR A GIVEN SUSTAINED UTE RATE. THE PRESENT CAPABILITY IS BASED ON A 4.0 CREW RATIO FOR A 10 HOUR UTE RATE. VARYING CREW RATIOS FOR A GIVEN UTE RATE APPROACH COULD ALLOW THE CRAF PROGRAM TO TAKE ADVANTAGE OF THE LIFT AVAILABLE FROM THE SMALL PACKAGE CARRIERS (FEDERAL EXPRESS, EMERY AND UNITED PARCEL) WHO ARE LOW CREW RATIO CARRIERS. THEY USE IN THEIR OWN OPERATIONS APPROXIMATELY 2 CREWS PER AIRCRAFT COMPARED TO 7-9 FOR SOME OF THE MAJOR CARRIERS.

IF ALL THE AIRCRAFT OPERATED BY THESE THREE CARRIERS WERE INCLUDED, (GIVEN THEIR PRESENT CREW FORCE OF APPROXIMATELY 2 CREWS PER AIRCRAFT) BUT CREWED AT 4 CREWS PER AIRCRAFT, AT 10 HOUR UTE RATE, A POTENTIAL OF 2.9 MTM/DAY IS AVAILABLE TO LRI CRAF. FOR EXAMPLE, FEDERAL EXPRESS OPERATES 12 DC-10'S AND HAS 5 IN THE CRAF. THE PRIMARY REASON FOR THE LOW PARTICIPATION IS FEDERAL EXPRESS' LOW CREW RATIO (2 CREWS PER AIRCRAFT). IN ORDER TO COMPLY WITH THE 4 CREWS PER AIRCRAFT REQUIRED FOR CRAF, THEY HAVE AGREED TO STAND DOWN 7 AIRCRAFT TO FULLY MAN 5 AIRCRAFT, FOR A SUSTAINED UTE RATE OF 10 HOURS PER DAY.

THERE MAY BE A MORE EFFICIENT MEANS TO GET INCREASED CAPABILITY. REDUCING CREW RATIOS TO MORE CLOSELY MATCH THEIR INHERENT CAPABILITY, OFFERS SOME POTENTIAL FOR INCREASED CAPABILITY. HOWEVER, ANY CREW RATIO REDUCTION MUST TAKE INTO ACCOUNT WHETHER A REDUCED CREW FORCE CAN SUPPORT AN ASSIGNED UTE RATE. THE UPPER LINE ON THIS CHART REFLECTS THE TOTAL LIFT POTENTIAL, IF A 3.0 CREWS PER AIRCRAFT/9.0 HOUR ACTIVITY SUSTAINED RATE IS USED. THIS CREW RATIO/ ACTIVITY RATE WAS DETERMINED BY USING A WORST CASE SCENARIO (6000 MILES) ROUTE ANALYSIS. THIS CHANGE COULD RESULT IN AN ADDITIONAL 1 MTM THAT IS POTENTIALLY AVAILABLE FROM ALL THE SMALL PACKAGE CARRIERS.

NOTE: THIS APPROACH REQUIRES STRICT APPLICATION OF A ROUTE STRUCTURE WHICH MAKES MAXIMUM USE OF THE CARRIERS' AIRCRAFT, OPERATIONS, AND CREW QUARTERLY/ANNUAL FLYING LIMITATIONS, AS WELL AS OUR ABILITY TO SUPPORT THEM ON MILITARY BASES. (THIS APPROACH MAY PROVIDE ADDITIONAL CAPABILITY FOR THE SMALL PACKAGE CARRIERS WHO DO AGREE TO PARTICIPATE, TO OFFSET THE ONES WHO DO NOT PARTICIPATE FOR VARIOUS REASONS.)

# INCREASE IN LRI CRAF CARGO CAPABILITY CAUSED BY VARIED UTE RATE



- POTENTIAL INCREASE BY ESTABLISHING A SURGE UTE RATE (12.5 HR/DAY) OVER THE SUSTAINED UTE RATE (10.0 HR/DAY)
- SPARES & ROUTE STRUCTURE SENSITIVE
- DEPENDENT ON EACH CARRIERS WILLINGNESS TO SIGN UP

INCREASE IN LRI CRAF CARGO CAPABILITY  
CAUSED BY VARYING UTE RATE

ANOTHER APPROACH WHICH REPRESENTS POTENTIAL FOR INCREASED CAPABILITY IS ESTABLISHING BOTH A SUSTAINED AND A SURGE UTE RATE FOR CRAF CARRIERS. SHOWN HERE IS THE RESULTANT CAPABILITY FOR A 25% SURGE IN UTE RATE OVER THE LRI CAPABILITY PREVIOUSLY SHOWN.

THE 10 HOUR UTE/DAY HAS BEEN CONTRACTUALLY ACCEPTED BY THE CARRIERS SINCE 1952. PERHAPS FUTURE NEGOTIATIONS WITH CARRIERS SHOULD NOT ONLY ADDRESS A REALISTIC UTE RATE FOR BASIC OPERATION BUT ALSO A SURGE ACTIVITY RATE. HOWEVER, ANY SURGE RATE FOR THESE CARRIERS MUST ALSO CONSIDER SPARES, MAINTENANCE, THE SENIOR LODGER SYSTEM, MANNING, CREW FLIGHT LIMITATIONS AND ADHERENCE TO A STRICT ROUTE STRUCTURE.

ANY SURGE REQUIRES ADDITIONAL EFFORT FROM MAINTENANCE SUPPORT AND THE ABILITY TO MEET OR EXCEED MINIMUM GROUND TIMES. A SURGE RATE OF 12.5 HOURS PER DAY WOULD REQUIRE AN INCREASE OF 50% OVER THE PEACETIME FLEET AVERAGE FOR THE COMMERCIAL CARRIERS.

AS NOTED EARLIER, SOME CARRIERS HAVE 7-9 CREWS PER AIRCRAFT. IN SOME INSTANCES, INCREASED MANNING (E.G. 5 CREWS PER AIRCRAFT) COULD PROVIDE AN EVEN HIGHER ACTIVITY RATE CAPABILITY. THIS APPROACH WOULD BE CARRIER SPECIFIC. SOME CARRIERS ROUTINELY FLY OVER 10 HOURS/DAY WHILE OTHERS DO NOT. AGAIN THIS WOULD REQUIRE INDIVIDUAL CONTRACTS FOR EACH CARRIER VICE A SINGLE CONTRACT FOR ALL CARRIERS.

# **SENSITIVITY OF INCREASED LIFT ON CLOSURE TO A NOTIONAL THEATER**

MTM/DAY	B-747 EQV	DAYS
-2.7	-17	+1.3 PRESENT CAPABILITY
11.3	74	● BASE CASE
+2.9	+19	-1.2 25% SURGE (MAJOR CARRIER)
+3.9	+25	-1.8 ADJUSTED CREW RATIO (3.0) (SMALL PACKAGE CARRIER)
+4.8	+31	-2.4 ADJUSTED CREW RATIO (3.0) SURGE (SPC) 20%
+7.7	+50	-2.8 ADJUSTED CREW RATIO + FLEET SURGE

- BASED ON ADDING B-747 EQUIVALENTS TO BASE CASE
- NOTE: ONE B-747 EQUIVALENT = .154 MTM/DAY
- FLEET CONSISTS OF ORGANIC AIRLIFT & CRAF AIRCRAFT

## EFFECTS ON CLOSURE

THIS CHART IS PRESENTED TO PUT IN CONTEXT THE EFFECTS THAT ADDITIONAL LRI CRAF CARGO LIFT COULD HAVE ON CLOSURE.

WE PERFORMED A SENSITIVITY ANALYSIS ON CRAF CAPABILITY TO DETERMINE THE EFFECTS OF INCREASED LIFT CAPABILITY ON A 30 DAY CLOSURE. THE IMPACTS ON CLOSURE DAYS WERE STUDIED USING COMPARATIVE RUNS OF THE AIRLIFT LOADING MODEL. AFTER LIFT CAPABILITIES WERE QUANTIFIED, SENSITIVITY OF CLOSURE WAS DETERMINED.

THE CHART REFLECTS THE OVERALL IMPACT ON CLOSURE WHEN FLYING 6000 MILES INTO A NOTIONAL THEATER UTILIZING A 66 MTM/DAY FLEET OF BOTH MILITARY AND CIVILIAN AIRCRAFT. A 66 MTM/DAY (11.3 MTM/DAY FROM CRAF) CLOSURE CAPABILITY IS INDICATED AT THE BULLS-EYE IN THIS CASE.

THE NET IMPACT ON CLOSURE SHOWN IS BASED UPON ADDING B-747 EQUIVALENTS TO THIS NOTIONAL THEATER CASE. NOTE: ONE B-747 EQUIVALENT IS EQUAL TO 0.154 MILLION TON MILES PER DAY.

THE PRESENT CAPABILITY IS SHOWN ON THE FIRST LINE. AN INCREASED CLOSURE TIME OF 1.2 DAYS WOULD OCCUR IF CRAF CAPABILITY REMAINED AT 8.6 MTM/DAY. THIS IS APPROXIMATELY THE PRESENT CAPABILITY, OR THE LRI CARGO CAPABILITY IN THE LATE 1990'S.

REDUCTIONS OF 1.2 DAYS IN CLOSURE ARE POSSIBLE WITH A 25%, 30 DAY SURGE OF THE MID 1990'S CRAF CAPABILITY (+2.9 MTM/DAY), OR IF WE OBTAIN FULL PARTICIPATION OF THE SPC USING PRESENT CRAF RULES.

A 1.8 DAYS REDUCTION IN CLOSURE COULD BE REALIZED IF A 3.0 CREW RATIO/9.0 HOUR UTE RATE WAS ESTABLISHED WITH ALL THE SMALL PACKAGE CARRIERS (+3.9 MTM/DAY).

A FURTHER REDUCTION OF 0.6 DAYS IN CLOSURE WOULD OCCUR WITH A 20%, 30 DAY SURGE WITH THE SPC FLEET, OR 2.4 DAYS. (+ 4.8 MTM/DAY).

A TOTAL POTENTIAL OF 2.8 DAYS REDUCTION IN CLOSURE COULD BE AVAILABLE IF WE APPLY ALL THESE ALTERNATIVES TO A CRAF WHICH INCLUDES SMALL PACKAGE CARRIER CRAF AIRCRAFT AT A 3.0 CREW RATIO AND 20% SURGE (4.8 MTM/DAY), PLUS A 25% SURGE (2.9 MTM/DAY) FOR THE MAJOR CARRIERS. (+7.7 MTM/DAY)



## KEY OBSERVATIONS

- LRI CARGO CRAFT AIRLIFT CAPABILITY DECLINED APPROXIMATELY 45% FROM JAN 1984 TO JAN 1986, 24% BELOW MINIMUM GOAL
- ONLY 28% OF SMALL PACKAGE CARRIERS CAPABILITY IS IN THE LRI CARGO CRAFT
- 25% OF THE LRI CARGO CAPABILITY WILL COME FROM THE CRAFT ENHANCEMENT PROGRAM WITH PAN AM
- FULL PARTICIPATION IN LRI CARGO CRAFT OF ALL CIVIL CARGO AIRCRAFT IS NOT LIKELY
- CONSIDERATION SHOULD BE GIVEN TO MANAGEMENT INITIATIVES FOR INCREASING LIFT CAPABILITY
  - CRAFT ENHANCEMENT PROGRAMS TO CONVERT:
    - EXISTING PASSENGER AIRCRAFT TO CARGO CONVERTIBLE
    - NEW PASSENGER AIRCRAFT TO CARGO CONVERTIBLE
    - EXISTING PASSENGER AIRCRAFT TO CARGO CONVERTIBLE
  - BUT USED IN FREIGHTER OPERATIONS.
- DEVELOP SPECIFIC CONTRACTS FOR SMALL PACKAGE CARRIERS THAT PERMIT REDUCED CREW RATIO & SUSTAINED UTE RATE REQUIREMENTS
- ESTABLISH DISCRETE SUSTAINED & SURGE UTE RATES FOR EACH CARRIER

## KEY OBSERVATIONS

LRI CARGO CRAF AIRLIFT CAPABILITY DECLINED APPROXIMATELY 45% FROM JAN 1984 - JAN 1986, 24% BELOW GOAL. THERE ARE SUFFICIENT NUMBERS OF CARGO AIRCRAFT AVAILABLE IN THE CIVILIAN FLEET TO SUPPORT CRAF MINIMUM GOALS, BUT NOT ALL CARRIERS PARTICIPATE. THUS, OUR ABILITY TO MAINTAIN A LEVEL OF CRAF CAPABILITY IS DEPENDENT ON HOW WELL WE CAN INDUCE CARRIERS TO JOIN CRAF AND, ONCE IN CRAF, TO SEEK AREAS FOR IMPROVEMENT IN LIFT CAPABILITY. IN ADDITION TO AN AGGRESSIVE EFFORT BY HQ/MAC TO INCREASE PARTICIPATION, AND THE PRESENT CRAF ENHANCEMENT PROGRAM, IT WILL TAKE ADDITIONAL CAPABILITY IF WE ARE TO REACH OUR GOALS IN THE OUT YEARS. THE CAPABILITY OF THE LONG-RANGE INTERNATIONAL CRAF CARGO FLEET TO MEET ITS SHARE OF THE AIRLIFT MASTER PLAN GOALS IS NOW SO MARGINAL THAT IT CANNOT WITHSTAND ANY MAJOR REDUCTIONS IN PARTICIPATION OR INCREASE IN AIRLIFT REQUIREMENTS.

UNDER THE PRESENT CRAF PARTICIPATION RULES AND PHILOSOPHY, ONLY 28% OF WIDE BODY SMALL PACKAGE CARRIER AIRCRAFT ARE PRESENTLY IN THE LRI CARGO CRAF.

25% OF THE LRI CARGO CAPABILITY WILL COME FROM THE CRAF ENHANCEMENT PROGRAM WITH PAN AM. THIS PROGRAM ADDS 2.9 MTM/DAY TO LRI CARGO CAPABILITY. HOWEVER, THESE B-747 AIRCRAFT HAVE ALREADY LOGGED 50,000 + HOURS WHEN MODIFIED, AND WILL NEAR THEIR 100,000 HOUR SERVICE LIFE WHEN THE 12 YEAR CONTRACT EXPIRES.

SOME CIVIL CARGO CARRIERS ARE UNABLE OR UNWILLING TO PARTICIPATE IN THE CRAF PROGRAM. IT IS UNLIKELY THAT ALL CIVIL AIR CARRIERS WILL PARTICIPATE IN THE CRAF PROGRAM IN THE SAME WAY THEY DID 30 YEARS AGO, GIVEN THE PRESENT AIRLINE INDUSTRY STRUCTURE.

CONSIDERATION SHOULD BE GIVEN TO MANAGEMENT INITIATIVES FOR INCREASING LIFT CAPABILITY:

- CRAF ENHANCEMENT PROGRAMS: THERE ARE THREE DIFFERENT APPROACHES TO CONVERT PASSENGER AIRCRAFT INTO CARGO CONVERTIBLE CONFIGURATION: START NEW PROGRAMS SIMILAR TO THE EXISTING CRAF ENHANCEMENT PROGRAM; CONVERT NEW PASSENGER AIRCRAFT TO CARGO CONVERTIBLE CONFIGURATION WHILE THEY ARE ON THE PRODUCTION LINE; OR INSTITUTE A NEW CRAF ENHANCEMENT PROGRAM TO TAKE ADVANTAGE OF CARRIERS ALREADY CONVERTING EXISTING PASSENGER AIRCRAFT TO CARGO AIRCRAFT TO MAKE THEM CARGO CONVERTIBLE FREIGHTER AIRCRAFT.
- CARRIER SPECIFIC CONTRACTS: DEVELOP SPECIFIC CONTRACTS FOR SMALL PACKAGE CARRIERS THAT PERMIT REDUCED CREW RATIO AND SUSTAINED UTE RATE REQUIREMENTS WHICH MORE CLOSELY MATCH THEIR INHERENT CAPABILITY.
- SURGE AND SUSTAINED UTE RATE: ESTABLISH DISCRETE, ACHIEVABLE SUSTAINED AND SURGE UTE RATES FOR EACH CRAF CARRIER.

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SAF/ALG (2)

### HQ USAF

AF/LETX	(2)
AF/XOXFL	(2)
AFCSA/SAGM	(40)
AFCSA/SAMI	(10)
AFCSA/SAMA	(1)

### Commands

MAC/XPW	(2)
MAC/XPS	(2)
MAC/TRC	(2)